DOCUMENT RESUME

ED 345 057 CE 061 151

TITLE	Electrical Trades. Ohio's Competency Analysis Profile.
INSTITUTION	Ohio State Univ., Columbus. Vocational Instructional Materials Lab.
SPONS AGENCY	Ohio State Dept. of Education, Columbus. Div. of Vocational and Career Education.
PUB DATE	Jan 92
NOTE	21p.; For related documents, see ED 338 827-852 and CE 061 142-176.
AVAILABLE FROM	Vocational Instructional Materials Lab, Ohio State University, 1900 Kenny Road, Columbus, OH 43210-1090 ($1.50).
PUB TYPE	Guides - Classroom Use - Teaching Guides (For Teacher) (052)
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	Building Trades; Competence; *Competency Based Education; *Electrical Occupations; Electric Circuits; *Electricity; Employment Potential; Entry Workers; Job Analysis; Job Skills; Postsecondary Education; Secondary Education; Task Analysis; Vocational Education
IDENTIFIERS	DACUM Process; Ohio

ABSTRACT

Developed through a modified DACUM (Developing a Curriculum) process involving business, industry, labor, and community agency representatives in Ohio, this document is a comprehensive and verified employer competency profile for electrical trades. The list contains units (with and without subunits), competencies, and competency builders that identify the skills needed to enter these occupations. The occupational, academic, and employability skills for this occupation or occupational area are included. Within the outline are three levels of items: core, advancing, and futuring. Core items identify the knowledge, skills, and attitudes essential for entry-level employment. These items are required to be taught and will be the basis for questions on the state vocational competency tests. Advancing items identify the knowledge, skills, and attitudes needed to advance in the occupation; futuring items identify the knowledge, skills, and attitudes needed to enter and remain in a given occupation 3 to 4 years from now. Titles of the four units are as follows: fundamentals of electricity, residential applications, commercial and industrial applications, and employability skills. (KC)

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OCAP

OHIO'S COMPETENCY ANALYSIS PROFILE

ELECTRICAL TRADES

ED345057

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CE 061 151

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What is OCAP?

"A comprehensive and verified employer competency list will be developed and kept current for each program." This is the second objective of Imperative 3 of the *Action Plan for Accelerating the Modernization of Vocational Education: Ohio's Future at Work*. Ohio's Competency Analysis Profile (OCAP) lists are the Division of Vocational and Career Education's response to that objective. OCAP lists evolve from a modified DACUM process involving business, industry, labor, and community agency representatives from throughout Ohio. The OCAP process is directed by the Vocational Instructional Materials Laboratory at The Ohio State University's Center on Education and Training for Employment.

How is OCAP used?

Each OCAP contains units (with and without subunits), competencies, and competency builders that identify the occupational, academic*, and employability skills needed to enter a given occupation or occupational area. Within that outline there are three levels of items: core, advancing, and futuring. Core items identify the knowledge, skills, and attitudes essential for entry-level employment. These items are required to be taught and will be the basis for questions on the state vocational competency tests (scheduled to begin in school year 1993-94). Advancing items (marked with one asterisk) identify the knowledge, skills, and attitudes needed to advance in a given occupation. Futuring items (marked with two asterisks) identify the knowledge, skills, and attitudes needed to enter and remain in a given occupation three to four years from now.

School districts may add as many units, subunits, competencies, and/or competency builders as desired to reflect local employment needs, trends, and specialties. Local advisory committees should be actively involved in the identification and verification of additional items. Using OCAP lists, instructors will be able to formulate their vocational courses of study and monitor competency gains via the new criterion-referenced competency testing program that will be directly tied to the competencies identified on the OCAP lists.

***Academic competencies have not been identified for all OCAPs. At a later date math, communication, and science competencies will be released.**

The **Employability Skills** portion of this list was verified by the following employer panel:

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Ohio Competency Analysis Profile
Electrical Trades

Unit 1: Fundamental Concepts of Electricity
Subunit 1.1: Safety

Competency 1.1.1: Maintain safe work environment

Competency Builders:

1.1.1.1 Follow safety procedures according to Occupational Safety and Health Administration (OSHA) guidelines
1.1.1.2 Wear required safety gear
1.1.1.3 Identify location of emergency power-kill switch
1.1.1.4 Identify and comply with lockout and tag-out procedures
1.1.1.5 Handle and store materials
1.1.1.6 Identify and handle hazardous materials according to Environmental Protection Agency (EPA) guidelines
1.1.1.7 Conduct routine safety inspection
1.1.1.8 Correct safety hazards according to OSHA guidelines
1.1.1.9 Demonstrate use of fire extinguisher
1.1.1.10 Demonstrate proper lifting techniques
1.1.1.11 Complete accident report
1.1.1.12 Identify and comply with company's substance abuse policy
1.1.1.13 Identify side effects of prescription and nonprescription drugs

Competency 1.1.2: Maintain tools and equipment

Competency Builders:

1.1.2.1 Identify, use, and care for tools
1.1.2.2 Identify, use, and care for equipment
1.1.2.3 Identify, use, and care for power-operated equipment
1.1.2.4 Store tools and equipment
1.1.2.5 Erect scaffolding and set up ladders according to OSHA guidelines
1.1.2.6 Demonstrate proper use and care of safety equipment

Competency 1.1.3: Identify basic first-aid techniques

Competency Builders:

1.1.3.1 Identify basic first-aid procedures
1.1.3.2 Acquire American Red Cross first-aid certification*
1.1.3.3 Identify need for and locations of cardiopulmonary resuscitation (CPR) certification training
1.1.3.4 Acquire CPR certification*

* Advancing
** Futuring

Unit 1: Fundamental Concepts of Electricity
Subunit 1.2: Electrical Principles

Competency 1.2.1: Analyze and measure values in direct current (DC)

Competency Builders:

1.2.1.1 Analyze applications of magnetism in electricity
1.2.1.2 Apply magnetic principles to electrical theory
1.2.1.3 Compare conducting and insulating materials
1.2.1.4 Determine resistor values
1.2.1.5 Apply Ohm's law
1.2.1.6 Apply Kirchhoff's law
1.2.1.7 Construct and analyze simple DC circuits
1.2.1.8 Construct and analyze series DC circuits
1.2.1.9 Construct and analyze parallel DC circuits
1.2.1.10 Construct and analyze series-parallel DC circuits
1.2.1.11 Measure current, voltage, and resistance in DC circuits
1.2.1.12 Explain simple DC generator action
1.2.1.13 Explain simple DC motor action
1.2.1.14 Explain principals of solid-state switching devices

Competency 1.2.2: Analyze and measure values in alternating current (AC) circuits

Competency Builders:

1.2.2.1 Construct and analyze simple AC circuits
1.2.2.2 Construct and analyze series AC circuits
1.2.2.3 Construct and analyze parallel AC circuits
1.2.2.4 Construct and analyze series-parallel circuits
1.2.2.5 Compare peak (PK), root mean square (RMS), and average values
1.2.2.6 Examine characteristics of inductors in series and parallel circuits
1.2.2.7 Examine characteristics of capacitance in series and parallel circuits
1.2.2.8 Evaluate resistive-capacitive (RC) and resistive-inductive (RL) time constants (tc)
1.2.2.9 Examine frequency (f) and phase relationships
1.2.2.10 Examine resonance of inductive-capacitive (LC) circuits
1.2.2.11 Examine low-pass and hi-pass filters
1.2.2.12 Evaluate AC power
1.2.2.13 Evaluate transformers
1.2.2.14 Evaluate impedance match and maximum transfer of power
1.2.2.15 Measure current, voltage, and resistance in AC circuits
1.2.2.16 Explain simple AC generator action
1.2.2.17 Explain simple AC motor action
1.2.2.18 Evaluate power factor in AC circuits

* Advancing
** Futuring

Competency 1.2.3: Use test equipment

Competency Builders:

1.2.3.1 Make appropriate measurements using clamp-on ammeter
1.2.3.2 Make appropriate measurements using multimeter
1.2.3.3 Make appropriate measurements using digital multimeter
1.2.3.4 Make appropriate measurements using megger
1.2.3.5 Use an oscilloscope

Unit 1: Fundamental Concepts of Electricity

Subunit 1.3: Single-Phase and Three-Phase Circuits and Devices

Competency 1.3.1: Analyze single-phase motors

Competency Builders:

1.3.1.1 Analyze single-phase motors
1.3.1.2 Analyze single-phase motor starting systems

Competency 1.3.2: Analyze three-phase motors

Competency Builders:

1.3.2.1 Identify ways to connect three-phase motors
1.3.2.2 Troubleshoot three-phase motors

Unit 2: Residential Applications

Subunit 2.1: Estimating a Job

Competency 2.1.1: Demonstrate familiarity with National Electrical Code (NEC)

Competency Builders:

2.1.1.1 Obtain required information from NEC
2.1.1.2 Use NEC to determine correct materials
2.1.1.3 Use NEC to determine correct methods
2.1.1.4 Use NEC to determine correct applications
2.1.1.5 Use NEC to determine correct safety procedures

Competency 2.1.2: Read and interpret blueprints and specifications

Competency Builders:

2.1.2.1 Identify lines and symbols
2.1.2.2 Interpret and comply with local codes
2.1.2.3 Identify contractor's responsibilities
2.1.2.4 Develop list of materials needed

* Advancing
** Futuring

Competency 2.1.3: Plan and lay out job

Competency Builders:

2.1.3.1 Visit work site
2.1.3.2 Draw sketch
2.1.3.3 Calculate individual circuit loads
2.1.3.4 Determine number of outlets per circuit
2.1.3.5 Determine special outlet requirements

Competency 2.1.4: Determine equipment needed

Competency Builders:

2.1.4.1 Determine type of equipment required for job
2.1.4.2 Estimate electrical loads
2.1.4.3 Size electrical equipment to electrical loads

Competency 2.1.5: Estimate materials

Competency Builders:

2.1.5.1 Identify materials needed for job
2.1.5.2 Calculate quantities of materials needed
2.1.5.3 Obtain catalog and price lists
2.1.5.4 Compute cost estimate for materials

Competency 2.1.6: Estimate labor

Competency Builders:

2.1.6.1 Determine hourly rates
2.1.6.2 Determine number of hours required
2.1.6.3 Compute labor cost

Unit 2: Residential Applications

Subunit 2.2: Residential Installations

Competency 2.2.1: Install and rough-in wiring

Competency Builders:

2.2.1.1 Follow specifications of drawings and code requirements
2.2.1.2 Identify location and mount boxes
2.2.1.3 Determine circuits and lay out runs
2.2.1.4 Install wiring
2.2.1.5 Install wire in boxes
2.2.1.6 Install ground system
2.2.1.7 Make splices

Competency 2.2.2: Analyze and install distribution systems

Competency Builders:

2.2.2.1 Verify location of service equipment
2.2.2.2 Install meter base
2.2.2.3 Mount service panel and connect to meter base
2.2.2.4 Install and connect grounding system
2.2.2.5 Install and connect subpanel
2.2.2.6 Install overcurrent protective devices

Competency 2.2.3: Finish wiring

Competency Builders:

2.2.3.1 Follow specifications of drawings
2.2.3.2 Install fixtures
2.2.3.3 Install devices and covers
2.2.3.4 Check and test installation
2.2.3.5 Connect appliances

Unit 2: Residential Applications

Subunit 2.3: Troubleshooting and Repairing

Competency 2.3.1: Analyze blueprints to identify circuit function

Competency Builders:

2.3.1.1 Recognize electrical symbols
2.3.1.2 Interpret schematic reading and wiring programs

Competency 2.3.2: Trace circuits to locate problems

Competency Builders:

2.3.2.1 Identify circuit type or subsystem
2.3.2.2 Locate specific circuits according to diagram
2.3.2.3 Utilize proper troubleshooting technique
2.3.2.4 Replace faulty components

Competency 2.3.3: Use test equipment

Competency Builders:

2.3.3.1 Use a digital volt ohm multimeter (DVOM)
2.3.3.2 Use an analog volt ohm multimeter (AVOM)
2.3.3.3 Use a voltage tester (e.g., Wiggens)
2.3.3.4 Use an outlet tester

* Advancing
** Futuring

Unit 2: Residential Applications

Subunit 2.4: Specialized Systems

Competency 2.4.1: Install low-voltage systems

Competency Builders:

2.4.1.1 Install low-voltage communication system
2.4.1.2 Install low-voltage control system
2.4.1.3 Install low-voltage lighting system
2.4.1.4 Service low-voltage systems

Competency 2.4.2: Install security, fire alarm, and energy-management systems

Competency Builders:

2.4.2.1 Comply with local and state codes
2.4.2.2 Lay out system
2.4.2.3 Install and verify system

Competency 2.4.3: Service security, fire alarm, and energy-management systems

Competency Builders:

2.4.3.1 Check system operation
2.4.3.2 Troubleshoot malfunction
2.4.3.3 Maintain functioning system
2.4.3.4 Replace faulty components

Unit 3: Commercial and Industrial Applications

Subunit 3.1: Commercial and Industrial Installations

Competency 3.1.1: Install and rough-in wiring

Competency Builders:

3.1.1.1 Interpret blueprints
3.1.1.2 Verify on-site dimensions
3.1.1.3 Locate and install electrical boxes and panels
3.1.1.4 Use electrical test equipment
3.1.1.5 Install overhead and underground service
3.1.1.6 Lay out conduit runs
3.1.1.7 Cut, thread, and install rigid conduit
3.1.1.8 Cut and install nonmetallic rigid conduit
3.1.1.9 Cut and install cable trays
3.1.1.10 Cut and install flexible conduit
3.1.1.11 Cut and install liquid-tight flexible conduit
3.1.1.12 Identify and pull conductors
3.1.1.13 Install ground bonding systems
3.1.1.14 Finish and inspect rough installation

Competency 3.1.2: Finish wiring

Competency Builders:

3.1.2.1 Install plugs and switches
3.1.2.2 Install and connect fixtures
3.1.2.3 Install and connect overcurrent protection
3.1.2.4 Test, identify, and label circuits
3.1.2.5 Update prints, schematics, and blueprints

Unit 3: Commercial and Industrial Applications
Subunit 3.2: Specialized Industrial Installations

Competency 3.2.1: Install motors and motor controls

Competency Builders:

3.2.1.1 Check devices using diagnostic instruments
3.2.1.2 Install single-phase and three-phase motors
3.2.1.3 Interpret schematics and control diagrams
3.2.1.4 Connect motor to motor controls
3.2.1.5 Reverse motor
3.2.1.6 Connect motor to load

Competency 3.2.2: Install programmable controls

Competency Builders:

3.2.2.1 Mount programmable controls
3.2.2.2 Connect controllers to sensors
3.2.2.3 Interface motor to controls
3.2.2.4 Program machine operations*
3.2.2.5 Develop simple programmable controller ladder-logic program
3.2.2.6 Troubleshoot programmable controller ladder-logic program

Unit 3: Commercial and Industrial Applications
Subunit 3.3: Equipment Installation

Competency 3.3.1: Prepare for equipment installation

Competency Builders:

3.3.1.1 Identify electrical requirements for equipment
3.3.1.2 Interpret National Electric Code (NEC) and state and local electrical codes
3.3.1.3 Follow state fire marshal regulations
3.3.1.4 Determine power distribution
3.3.1.5 Interpret symbols
3.3.1.6 Read schematics
3.3.1.7 Interpret drawings and blueprints
3.3.1.8 Prepare site

* Advancing
** Futuring

Competency 3.3.2: Install equipment

Competency Builders:

3.3.2.1 Perform electrical installations
3.3.2.2 Check and test equipment and circuits
3.3.2.3 Connect power to equipment
3.3.2.4 Test power to equipment

Unit 3: Commercial and Industrial Applications

Subunit 3.4: Troubleshooting and Repairing

Competency 3.4.1: Analyze schematics to identify circuit function

Competency Builders:

3.4.1.1 Recognize electrical symbols
3.4.1.2 Interpret schematic reading and wiring programs

Competency 3.4.2: Trace circuits to locate problems

Competency Builders:

3.4.2.1 Identify circuit type or subsystem
3.4.2.2 Locate specific circuits according to diagram
3.4.2.3 Utilize proper troubleshooting technique

Competency 3.4.3: Use test equipment

Competency Builders:

3.4.3.1 Use a digital volt ohm multimeter (DVOM)
3.4.3.2 Use an analog volt ohm multimeter (AVOM)
3.4.3.3 Use a voltage tester (e.g., Wiggens)
3.4.3.4 Use oscilloscope

Competency 3.4.4: Maintain electrical systems

Competency Builders:

3.4.4.1 Troubleshoot and diagnose failure
3.4.4.2 Repair or replace defective electrical apparatus

Competency 3.4.5: Use soldering tools

Competency Builders:

3.4.5.1 Select appropriate soldering tools and supplies for job
3.4.5.2 Perform soldering and desoldering techniques

Competency 3.4.6: Troubleshoot and repair motors and controls

Competency Builders:

3.4.6.1 Check device using diagnostic instruments
3.4.6.2 Interpret schematics and control diagrams
3.4.6.3 Troubleshoot and repair servos
3.4.6.4 Troubleshoot and repair series motors
3.4.6.5 Troubleshoot and repair shunt motors
3.4.6.6 Troubleshoot and repair compound motors
3.4.6.7 Troubleshoot alternating current (AC) generators
3.4.6.8 Troubleshoot AC motors

Unit 3: Commercial and Industrial Applications

Subunit 3.5: Specialized Systems

Competency 3.5.1: Install low-voltage systems

Competency Builders:

3.5.1.1 Install low-voltage communication system
3.5.1.2 Install low-voltage control system
3.5.1.3 Install low-voltage lighting system
3.5.1.4 Service low-voltage systems

Competency 3.5.2: Install security and fire alarm systems

Competency Builders:

3.5.2.1 Comply with local, state, and NEC codes
3.5.2.2 Lay out system
3.5.2.3 Install and verify system

Competency 3.5.3: Install energy-management system

Competency Builders:

3.5.3.1 Install and verify system
3.5.3.2 Analyze power factor correction equipment*

Competency 3.5.4: Service security, fire alarm, and energy-management systems

Competency Builders:

3.5.4.1 Determine verification schedule
3.5.4.2 Check system operation
3.5.4.3 Troubleshoot malfunction
3.5.4.4 Maintain functioning system

* Advancing
** Futuring

Unit 3: Commercial and Industrial Applications

Subunit 3.6: Electronic Applications

Competency 3.6.1: Troubleshoot and repair/replace appropriate transducers or transmitters (sensors)

Competency Builders:

3.6.1.1 Analyze temperature sensor specifications
3.6.1.2 Analyze pressure sensor specifications
3.6.1.3 Analyze flow sensor specifications
3.6.1.4 Analyze speed or position sensor specifications
3.6.1.5 Analyze controller/indicator and recorder specifications
3.6.1.6 Analyze final control element specifications
3.6.1.7 Analyze limit switches
3.6.1.8 Analyze proximity switches
3.6.1.9 Analyze photo switches

Competency 3.6.2: Apply quality control

Competency Builders:

3.6.2.1 Perform calibrations
3.6.2.2 Implement statistical process control (SPC)
3.6.2.3 Perform preventive maintenance

Unit 4: Employability Skills

Subunit 4.1: Career Development

Competency 4.1.1: Investigate career options

Competency Builders:

4.1.1.1 Determine interests and aptitudes
4.1.1.2 Identify career options
4.1.1.3 Research occupations matching interests and aptitudes
4.1.1.4 Select career(s) that best match(es) interests and aptitudes
4.1.1.5 Identify advantages and disadvantages of career options, including nontraditional careers
4.1.1.6 Assess differences in wages, annual incomes, and job opportunities based on geographic location
4.1.1.7 Develop a career plan

Competency 4.1.2: Analyze potential barriers to employment

Competency Builders:

4.1.2.1 Identify common barriers to employment
4.1.2.2 Describe strategies to overcome employment barriers

Unit 4: Employability Skills
Subunit 4.2: Decision Making and Problem Solving

Competency 4.2.1: Apply decision-making techniques in the workplace

Competency Builders:

4.2.1.1 Identify the decision to be made
4.2.1.2 Compare alternatives
4.2.1.3 Determine consequences of each alternative
4.2.1.4 Make decisions based on values and goals
4.2.1.5 Evaluate the decision made

Competency 4.2.2: Apply problem-solving techniques in the workplace

Competency Builders:

4.2.2.1 Diagnose the problem and its causes
4.2.2.2 Identify alternatives and their consequences in relation to the problem
4.2.2.3 Examine multicultural and nonsexist dimensions of problem solving
4.2.2.4 Utilize resources to explore possible solutions to the problem
4.2.2.5 Compare and contrast the advantages and disadvantages of each solution
4.2.2.6 Determine appropriate action
4.2.2.7 Evaluate results

Unit 4: Employability Skills
Subunit 4.3: Work Ethic

Competency 4.3.1: Evaluate the relationship of self-esteem to work ethic

Competency Builders:

4.3.1.1 Identify special characteristics and abilities in self and others
4.3.1.2 Identify internal and external factors that affect self-esteem

Competency 4.3.2: Analyze the relationship of personal values and goals to work ethic both in and out of the workplace

Competency Builders:

4.3.2.1 Distinguish between values and goals
4.3.2.2 Determine the importance of values and goals
4.3.2.3 Evaluate how values affect goals
4.3.2.4 Identify short-term and long-term goals
4.3.2.5 Prioritize personal goals
4.3.2.6 Describe how personal values are reflected in work ethic
4.3.2.7 Describe how interactions in the workplace affect personal work ethic
4.3.2.8 Examine how life changes affect personal work ethic

Competency 4.3.3: Demonstrate work ethic

Competency Builders:

4.3.3.1 Examine factors that influence work ethic
4.3.3.2 Exhibit characteristics that reflect an appropriate work ethic

* Advancing
** Futuring

Unit 4: Employability Skills
Subunit 4.4: Job-Seeking Skills

Competency 4.4.1: Prepare for employment

Competency Builders:

4.4.1.1 Identify traditional and nontraditional employment sources
4.4.1.2 Utilize employment sources
4.4.1.3 Research job opportunities, including nontraditional careers
4.4.1.4 Interpret equal employment opportunity laws
4.4.1.5 Explain the critical importance of personal appearance, hygiene, and demeanor throughout the employment process
4.4.1.6 Prepare for generic employment tests and those specific to an occupation/organization

Competency 4.4.2: Design a résumé

Competency Builders:

4.4.2.1 Identify personal strengths and weaknesses
4.4.2.2 List skills and/or abilities, career objective(s), accomplishments/achievements, educational background, and work experience
4.4.2.3 Demonstrate legible written communication skills using correct grammar, spelling, and concise wording
4.4.2.4 Complete résumé using various formats
4.4.2.5 Secure references

Competency 4.4.3: Complete and process job application forms

Competency Builders:

4.4.3.1 Explain the importance of an application form
4.4.3.2 Identify ways to obtain job application forms
4.4.3.3 Describe methods for handling illegal questions on job application forms
4.4.3.4 Demonstrate legible written communication skills using correct grammar, spelling, and concise wording
4.4.3.5 Return application to proper person, request interview, and follow up

Competency 4.4.4: Demonstrate interviewing skills

Competency Builders:

4.4.4.1 Investigate interview environment and procedures
4.4.4.2 Explain the critical importance of personal appearance, hygiene, and demeanor
4.4.4.3 Demonstrate question and answer techniques
4.4.4.4 Demonstrate methods for handling difficult and/or illegal interview questions

* Advancing
** Futuring

Competency 4.4.5: Secure employment

Competency Builders:

4.4.5.1 Identify present and future employment opportunities within an occupation/organization
4.4.5.2 Research the organization/company
4.4.5.3 Use follow-up techniques to enhance employment potential
4.4.5.4 Compare and evaluate job offers

Unit 4: Employability Skills
Subunit 4.5: Job Retention Skills

Competency 4.5.1: Analyze the organizational structure of the workplace

Competency Builders:

4.5.1.1 Identify and evaluate employer expectations regarding job performance, work habits, attitudes, personal appearance, and hygiene
4.5.1.2 Be aware of and obey all company policies and procedures
4.5.1.3 Examine the role/relationship between employee and employer
4.5.1.4 Recognize opportunities for advancement and reasons for termination

Competency 4.5.2: Maintain positive relations with others

Competency Builders:

4.5.2.1 Exhibit appropriate work habits and attitude
4.5.2.2 Identify behaviors to establish successful working relationships
4.5.2.3 Cooperate and compromise through teamwork and group participation
4.5.2.4 Identify alternatives for dealing with harassment, bias, and discrimination based on race, color, national origin, sex, religion, handicap, or age

Unit 4: Employability Skills
Subunit 4.6: Job Advancement

Competency 4.6.1: Analyze opportunities for personal and career growth

Competency Builders:

4.6.1.1 Determine opportunities within an occupation/organization
4.6.1.2 Compare and contrast other opportunities
4.6.1.3 List benefits of job advancement
4.6.1.4 Evaluate factors involved when assuming a new position within or outside an occupation/organization

* Advancing
** Futuring

Competency 4.6.2: Exhibit characteristics needed for advancement

Competency Builders:

4.6.2.1 Display a positive attitude
4.6.2.2 Demonstrate knowledge of a position
4.6.2.3 Perform quality work
4.6.2.4 Adapt to changing situations and technology
4.6.2.5 Demonstrate capability for different positions
4.6.2.6 Participate in continuing education/training programs
4.6.2.7 Respect, accept, and work with ALL individuals in the workplace

Unit 4: Employability Skills
Subunit 4.7: Technology in the Workplace

Competency 4.7.1: Assess the impact of technology in the workplace

Competency Builders:

4.7.1.1 Cite how past business/industry practices have influenced present business/industry processes
4.7.1.2 Investigate the use of technology in the workplace
4.7.1.3 Analyze how present skills can be applied to learning new technologies

Competency 4.7.2: Use a variety of technological applications

Competency Builders:

4.7.2.1 Explore basic mathematical, scientific, computer, and technological principles
4.7.2.2 Use technology to accomplish assigned tasks
4.7.2.3 Create solutions to problems using technical means

Unit 4: Employability Skills
Subunit 4.8: Lifelong Learning

Competency 4.8.1: Apply lifelong learning to individual situations

Competency Builders:

4.8.1.1 Define lifelong learning
4.8.1.2 Identify factors that cause the need for lifelong learning

Competency 4.8.2: Adapt to change

Competency Builders:

4.8.2.1 Analyze the effects of change
4.8.2.2 Identify reasons why goals change
4.8.2.3 Describe the importance of flexibility when reevaluating goals
4.8.2.4 Evaluate the need for continuing education/training

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Unit 4: Employability Skills
Subunit 4.9: Economic Education

Competency 4.9.1: Analyze global enterprise system

Competency Builders:

4.9.1.1 Identify characteristics of various enterprise systems
4.9.1.2 Examine the relationship between competition, risk, and profit
4.9.1.3 Illustrate how supply and demand influence price

Competency 4.9.2: Evaluate personal money management

Competency Builders:

4.9.2.1 Describe the need for personal management records
4.9.2.2 Identify methods of taxation
4.9.2.3 Analyze how credit affects financial security
4.9.2.4 Compare types and methods of investments
4.9.2.5 Prepare a personal budget
4.9.2.6 Be an informed and responsible consumer
4.9.2.7 Analyze the effects of advertising on the consumer

Unit 4: Employability Skills
Subunit 4.10: Balancing Work and Family

Competency 4.10.1: Analyze the effects of family on work

Competency Builders:

4.10.1.1 Recognize how family values, goals, and priorities are reflected in the workplace
4.10.1.2 Identify present and future family structures and responsibilities
4.10.1.3 Describe personal and family roles
4.10.1.4 Analyze concerns of working parent(s)
4.10.1.5 Examine how family responsibilities can conflict with work
4.10.1.6 Resolve family-related conflicts
4.10.1.7 Explain how to use support systems/community resources to help resolve family-related conflicts

Competency 4.10.2: Analyze the effects of work on family

Competency Builders:

4.10.2.1 Identify responsibilities associated with paid and nonpaid work
4.10.2.2 Compare the advantages and disadvantages of multiple incomes
4.10.2.3 Explain how work can conflict with family responsibilities
4.10.2.4 Explain how work-related stress can affect families
4.10.2.5 Identify family support systems and resources

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Unit 4: Employability Skills
Subunit 4.11: Citizenship in the Workplace

Competency 4.11.1: Exercise the rights and responsibilities of citizenship in the workplace

Competency Builders:

4.11.1.1 Identify the basic rights and responsibilities of citizenship
4.11.1.2 Examine the history and contributions of all racial, ethnic, and cultural groups

Competency 4.11.2: Cooperate with others in the workplace

Competency Builders:

4.11.2.1 Identify situations in which compromise is necessary
4.11.2.2 Examine how individuals from various backgrounds contribute to work-related situations
4.11.2.3 Demonstrate initiative to facilitate cooperation
4.11.2.4 Give and receive constructive criticism to enhance cooperation

Unit 4: Employability Skills
Subunit 4.12: Leadership

Competency 4.12.1: Evaluate leadership styles appropriate for the workplace

Competency Builders:

4.12.1.1 Identify characteristics of effective leaders
4.12.1.2 Compare leadership styles
4.12.1.3 Demonstrate effective delegation skills
4.12.1.4 Identify opportunities to lead in the workplace

Competency 4.12.2: Demonstrate effective teamwork skills

Competency Builders:

4.12.2.1 Identify the responsibilities of a valuable group member
4.12.2.2 Exhibit open-mindedness
4.12.2.3 Identify methods of involving each member of a team
4.12.2.4 Contribute to the efficiency and success of a group
4.12.2.5 Determine ways to motivate others

Competency 4.12.3: Utilize effective communication skills

Competency Builders:

4.12.3.1 Identify the importance of listening
4.12.3.2 Demonstrate assertive communication
4.12.3.3 Recognize the importance of verbal and nonverbal cues and messages
4.12.3.4 Analyze written material
4.12.3.5 Prepare written material
4.12.3.6 Give and receive feedback
4.12.3.7 Articulate thoughts
4.12.3.8 Use appropriate language

Unit 4: Employability Skills

Subunit 4.13: Entrepreneurship

Competency 4.13.1: Evaluate the role of small business in the economy

Competency Builders:

4.13.1.1 Identify the benefits of small business to a community
4.13.1.2 Analyze opportunities for small business in a community

Competency 4.13.2: Examine considerations of starting a business

Competency Builders:

4.13.2.1 Research a business idea
4.13.2.2 Compare various ways to become a small business owner
4.13.2.3 Investigate factors to consider in financing a new business
4.13.2.4 Evaluate entrepreneurship as a career option

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